50 YEARS OF VIGILANCE FROM ABOVE

NATIONAL RECONNAISSANCE ALMANAC

NATIONAL RECONNAISSANCE OFFICE
UNITED STATES OF AMERICA

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NATIONAL RECONNAISSANCE ALMANAC

JANUARY 2011

CENTER FOR THE STUDY OF
NATIONAL RECONNAISSANCE

Foreword

The Center for the Study of National Reconnaissance (CSNR) produces this almanac to celebrate the history, achievements and evolution of the reconnaissance discipline — from individuals who forged its beginnings to those who further shaped the vision to meet the changing threats to national security during the past 50 years. This publication reveals the founding of the National Reconnaissance Office (NRO) and its continued prosperity as a leading intelligence organization today. The CSNR believes you will find this almanac informative, engaging, and practical.

We have identified important dates in the history of reconnaissance and, to provide context, other key events in national security, technology, and space exploration. Through this historical compilation, the CSNR seeks to offer you an opportunity to increase your understanding of national reconnaissance and to develop an appreciation for the contributions of the many engineers, scientists, and other risk-takers whose efforts and achievements paved the way for space-based reconnaissance systems.

The CSNR undertakes projects such as this almanac as an enabler of NRO goals and objectives. We believe having an appreciation for our national reconnaissance heritage can inspire today's workforce to continue contributing innovations that fulfill the current mission of the NRO. The NRO will continue a 50-year tradition of innovation as it adjusts to the challenges of the 21st century.

Robert A. McDonald, Ph.D.
Director, Center for the Study of National Reconnaissance
Business Plans and Operations

▲ **NROL-22.**

▲ **Left: Grab. Middle: Eisenhower with the Corona capsule. Right: Professor Thaddeus Lowe's reconnaissance balloon used during the American Civil War provided one of the first instances of aerial reconnaissance.**

The Concept and Origins of Reconnaissance

Reconnaissance refers to the conduct of an exploratory survey to gather information. Since their beginnings on Earth, both animals and humans have used their senses to acquire data from a distance for daily survival — to locate food, take shelter, or avoid danger. Over time, humans have learned techniques and developed technologies to extend their innate information gathering capabilities. Early examples of expanded human reconnaissance include: animal tracking; making use of natural or man-made observation posts; and using faster or higher endurance transportation to increase speed and expand range for scouting activities.

Early military forces used reconnaissance to gather information about the location, force size, activities, and resources of enemies or potential adversaries. Reconnaissance methods became more sophisticated as technologies evolved. During the Civil War, both the Union and Confederacy used manned balloons as platforms for aerial reconnaissance of the battlefield and enemy territory. With the invention of photography in the early 19th century, aerial observation platforms could collect, retain, and share more accurate and complete information without reliance on human observation and memory.

At the beginning of the 20th century, advancements in photography along with invention of the airplane greatly improved the military's ability to conduct aerial reconnaissance. World War I served as a proving ground for these extended range, higher quality information collection platforms. Information gleaned by U.S. reconnaissance activities generally flowed to tactical commanders in the field, either directly or through military intelligence components.

The use of reconnaissance for non-military purposes also began to evolve in the early 20th century. Balloons and kites collected information about the weather and about natural disasters, such as the San Francisco earthquake on 18 April 1906.

As technology advanced, humans began to utilize more of the electromagnetic spectrum with such inventions as radio, radar, and sonar. Scientists developed instruments to intercept the signals transmitted by these devices and to exploit information from the intercepted data: the direction from which the signal originated, the type of signal, or its content. During World War II, aerial and electronic reconnaissance provided both sides with significant military intelligence.

The Cold War created a new reconnaissance challenge for the U.S. To obtain information about its strategic rival behind the Iron Curtain with its vast area of denied territory, initially the U.S. relied on strategic reconnaissance flights over the periphery of the Union of Soviet Socialist Republics (U.S.S.R.) using military aircraft such as the RB-47E, as well as ground-based electronic intercept stations. These methods had limited success. Eventually, the U.S. turned to the high-altitude U-2 aircraft to overfly and collect photography of the U.S.S.R. However, following the shootdown of a U-2 over the U.S.S.R. on 1 May 1960, the U.S. turned to a new method of reconnaissance to achieve its intelligence objectives.

Emergence of the space age brought about new reconnaissance capabilities. The early 20th century vision and genius of Robert Goddard, called "the father of modern rocket propulsion," pioneered the concept of placing objects in space. For nearly fifty years, scientists built on Goddard's ideas. The U.S. had an active civilian and military space program. The first successful U.S. satellite launch occurred on 31 January 1958 when the Army Ballistic Missile agency used a modified Redstone rocket to send Explorer 1 into orbit. Thirteen months later, following the 21 January 1959 on-pad failure of the first Corona

vehicle, the U.S. Air Force (USAF) launched the Discoverer I, the first object intended for a polar orbit. The Discoverer series became the "scientific cover" under which the Corona program developed.

The U.S. launch successes, together with the termination of U-2 airborne surveillance operations over the U.S.S.R., fueled the U.S. vision for a space reconnaissance program. In June 1960, the U.S. Navy (USN) launched the first successful reconnaissance satellite, a Sigint vehicle developed by the Naval Research Laboratory (NRL). The Galactic Radiation and Background (Grab), was designed to collect Soviet electronic intelligence and orbited for several months. Two months later, the CIA and USAF succeeded with their jointly managed Corona program when the first photo reconnaissance film was returned and recovered from space. The summer successes of 1960 signaled the beginning of space reconnaissance.

To further enhance space reconnaissance, President Eisenhower transferred the Air Force's photoreconnaissance Samos satellite project to the newly established Air Force Office of Missile and Satellite Systems (SAF/MSS) on 31 August 1960. Air Force Under Secretary, Joseph V. Charyk, led the office and reported to the Secretary of Defense. A year later, the Kennedy administration established the National Reconnaissance Program (NRP), placing all reconnaissance satellite and airborne overflight activities into the program. The SAF/MSS was absorbed by a new organization when on 6 September 1961, the CIA and DoD signed a charter that formed the highly secretive, covert National Reconnaissance Office to manage the NRP.

Since then, NRO reconnaissance satellites have collected valuable imagery and signals intelligence for U.S. decision makers. The focus of the organization has transitioned and expanded over its last fifty years from monitoring Cold War adversaries to providing timely information to the warfighter, situational awareness for first responders, and treaty enforcement across the globe. Space has become the location of choice from which nations, organizations, and industry can conduct long-range reconnaissance of the Earth's surface for both military and civil applications.

Today, the NRO continues its job of launching and operating the nation's reconnaissance satellites to gather information that will reduce the unknown, protect vital national interests, and support human survival. Continued advancements in technology have provided information about the activities, resources, and meteorological and hydrographic data from around the globe.

▲ NROL-05

National Reconnaissance and Space Exploration Timeline

July 14, 1914
U.S. government issued patent to Dr. Robert Goddard for liquid-fueled rocket design, laying the foundation for future spaceflights.

July 26, 1947
President Truman signed the National Security Act, establishing the U.S. Air Force as a separate service and forming the CIA, the National Security Council, and DoD.

November 24, 1954
President Eisenhower approved the U-2 concept and appointed the CIA to manage its development.

October 4, 1957
U.S.S.R. launched Sputnik 1, the first artificial, earth-orbiting satellite and setting the "international precedence for freedom of space."

N A T I O N A L R E C O N N A I S S A N C E A N D

September 6, 1961
DoD and CIA established the National Reconnaissance Office to oversee the National Reconnaissance Program.

November 20, 1965
CIA's A-12 supersonic reconnaissance aircraft made its final validation flight, setting speed and altitude records of Mach 3.29 and 90,000 feet.

July 20, 1969
U.S. astronauts Neil Armstrong and Buzz Aldrin became the first to walk on the moon.

May 26, 1972
Information gathered from Corona's last mission, permitting the U.S. to conclude the initial signing of the Strategic Arms Limitation Treaty.

February 28, 1958
President Eisenhower endorsed the film recovery satellite program (to be known as Corona) for photoreconnaissance.

October 1, 1958
The National Aeronautics and Space Act created the National Aeronautics and Space Administration (NASA).

May 1, 1960
Gary Powers' U-2 reconnaissance plane was shot down by Soviet missiles near Syerdlovsk, U.S.S.R.

June 22, 1960
The Naval Research Lab and USAF launched an Elint satellite (Grab), the first U.S. reconnaissance satellite.

August 18, 1960
USAF C-119 recovered Discoverer XIV's film capsule, containing the first reconnaissance photos from space.

SPACE EXPLORATION TIMELINE

October 1, 1974
NRO Program D was abolished, transferring responsibility for U-2, A-12, and SR-71 to the U.S. Air Force.

April 12, 1981
The first space shuttle was launched from Cape Canaveral.

September 18, 1992
The existence of the NRO was publicly acknowledged in an official release from the Department of Defense.

October 15, 2008
NRO declassified the fact of domestic NRO Mission Ground Stations and NRO presence at specific overseas locations.

▲ **Left: In the beginning, the NRO was quite literally an office in the Pentagon. It managed all the disparate programs out of the Pentagon Suite 4C1000. Right: The NRO Headquarters located in Chantilly, Virginia.**

The NRO – Its Early Years

The establishment of the NRO on 6 September 1961 and its early management structure intended to build upon the early collaboration between the USAF and the CIA. At its beginning, the NRO was jointly directed by USAF and CIA officials, with both reporting to the Director of Central Intelligence and the Secretary of Defense. This union provided both challenges and triumphs for the early pioneers of the organization who operated in the highly secretive, covert organization. Less than six months of being named NRO co-director, Richard Bissell stepped down. DoD and CIA retained as sole director Joseph Charyk who continued to also serve as Under Secretary of the Air Force. There was no deputy director until March 1963 when a third charter established that the NRO would be led by a DoD appointed director and a CIA appointed deputy.

From the very beginning, there has been a long-standing relationship between the Air Force, the CIA, and the U.S. Navy (USN). The early NRO had a small headquarters staff that operated from Room 4C1000 at the Pentagon. The Director and Deputy Director of the NRO supervised four alpha-designated program offices. Program A managed the U.S. Air Force satellite reconnaissance efforts. Program B oversaw the CIA satellite reconnaissance program. Program C operated the U.S. Navy satellite reconnaissance program.

Program D consisted of aerial reconnaissance platforms like the U-2, A-12, and SR-71.

On 1 October 1974, the NRO abolished Program D, transferring control of the program's aerial reconnaissance assets to the Department of the Air Force. On 31 December 1992, the NRO disestablished the remaining three alpha-designated program offices and replaced them with functional directorates and program offices (e.g., imagery intelligence, signals intelligence, communications, and space launch). To facilitate this reorganization, the NRO relocated its various program activities, initially consolidating them at interim facilities in the Northern Virginia area. In 1996, the NRO opened a permanent, integrated headquarters facility at the Westfields Business Park in Chantilly, Virginia.

▲ **Top: Corona, the first imagery reconnaissance satellite. Bottom: Grab was the first Sigint-reconnaissance satellite.**

Four years before moving into its new Westfields headquarters complex, the NRO began the process of transforming from a secret organization to an acknowledged agency of the Department of Defense. In an 18 September 1992 press release, the existence of the NRO was publicly acknowledged.

Some of the formerly classified activities of the NRO became public when President Clinton authorized the Director of Central Intelligence to declassify two programs. Corona, the first imagery reconnaissance satellite was declassified in 1995. Grab, the first Sigint-reconnaissance satellite was declassified in 1998. These programs, and succeeding NRO programs, have provided U.S. leadership with reliable intelligence in support of national security. Early in the NRO's history, President Lyndon Johnson recognized

the value of the NRO's overhead reconnaissance systems when, in 1967, while speaking about the U.S. space program, he said: "We've spent between 35 and 40 billion dollars on space. But if nothing else had come from that program except the knowledge that we get from our satellite photography, it would be worth ten times to us what the whole program cost. Because tonight, I know how many missiles the enemy has that I would not know (otherwise)."[1]

In recent decades, the NRO has been introduced to more challenges as the world has become more globalized. The Internet and international transportation networks have interconnected countries and persons around the globe, making monitoring the world an increasingly difficult task. No event speaks to this challenge more than that of the terrorist attacks inside the U.S. on September 11, 2001 — or 9/11. With the U.S. troop deployment response to 9/11, NRO leaders realized the immediate need to provide more tactical support to the warfighter. In a 2003 address to the National Space Symposium, DNRO Peter Teets summarized, "In the late 1950s, it was a rare combination of new threats, events, and circumstances that encouraged unprecedented innovation in defense and intelligence technologies. The results - realization of highly capable space systems to meet critical national security needs - were beyond expectation. We are, again, at the brink of another national need for transformation via space capabilities, in the face of a new threat to our homeland. Through innovation, integration, and perspiration, we'll deliver that new potential."

As the NRO approaches its 50th anniversary, it is recognized not only for its significant historical accomplishments, but also for the transformational intelligence collection systems that help ensure continued "vigilance from above." It has transitioned from operating reconnaissance systems whose primary mission was to collect strategic military, political, and economic information about its principal Cold War adversary, the U.S.S.R., to a new and emerging mission. Today this mission includes developing information about emerging threats that are more diverse and widely dispersed. International terrorists, drug traffickers, and non-state actors intent on proliferation of weapons of mass destruction, have become critical NRO missions. By developing highly accurate military targeting data, supporting international peacekeeping and humanitarian relief operations, and assessing the impact of natural disasters, the NRO continues to provide the nation with vigilance from above.

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[1] See R. A. McDonald, (1999). "NRO's Satellite Imaging Reconnaissance: Moving from the Cold War Threat to Post-Cold War Challenges," *Defense Intelligence Journal,* 8-1, 66.

▲ NROL-26

Directors of National Reconnaissance

Dr. Richard M. Bissell, Jr.
6 Sep 1961 – 28 Feb 1962
(Co-Director)

Dr. Joseph V. Charyk
6 Sep 1961 – 28 Feb 1962
(Co-Director)
29 Feb 1962 – 1 Mar 1963

Dr. Brockway McMillan
1 Mar 1963 – 1 Oct 1965

Dr. Alexander H. Flax
1 Oct 1965 – 17 Mar 1969

Dr. John L. McLucas
17 Mar 1969 – 20 Dec 1973

Mr. James W. Plummer
21 Dec 1973 – 28 Jun 1976

Mr. Thomas C. Reed
9 Aug 1976 – 7 Apr 1977

Dr. Hans M. Mark
3 Aug 1977 – 8 Oct 1979

Dr. Robert J. Hermann
8 Oct 1979 – 2 Aug 1981

Mr. Edward C. Aldridge, Jr.
3 Aug 1981 – 16 Dec 1988

Mr. Martin C. Faga
28 Sep 1989 – 5 Mar 1993

Mr. Jeffrey K. Harris
9 May 1994 – 26 Feb 1996

Mr. Keith R. Hall
28 Mar 1997 – 13 Dec 2001

Mr. Peter B. Teets
13 Dec 2001 – 25 Mar 2005

Dr. Donald M. Kerr
26 Jul 2005 – 04 Oct 2007

Mr. Scott F. Large
19 Oct 2007 – 18 Apr 2009

Gen. Bruce A. Carlson (Ret)
12 Jun 2009 – Present

The technology that we are pursuing inside the National Reconnaissance Office is absolutely leading edge. We partner with the finest universities, the most advanced companies and other government agencies … to develop that technology."

Gen. Bruce A. Carlson (Ret)
GEOINT Symposium 2009

Key Events in the Exploration of Space and the Evolution of Space-Based Reconnaissance

▲ **Top: Professor Thaddeus Lowe conducted aerial reconnaissance from a balloon during Battle of Fair Oaks in Virginia. Bottom: Robert Goddard obtained patents for liquid-fueled and multi-staged rocket designs.**

1862

May 31: Professor Thaddeus Lowe conducted aerial reconnaissance from a balloon during Battle of Fair Oaks in Virginia.

1903

Dec. 17: Orville and Wilbur Wright demonstrated first flight of powered, heavier-than-air aircraft at Kitty Hawk, North Carolina.

1906

Apr. 18: San Francisco earthquake devastation photographed with George Lawrence's "Captive Airship" comprised of a kite "train" with an attached camera.

1909

Apr. 24: A news photographer, flying with Wilbur Wright in Italy, took first motion pictures from an airplane in flight.

Aug. 2: The U.S. Army accepted its first Wright Brothers airplane, making it the first airplane put into service by any government.

1914

Jul. 7: Robert Goddard obtained patents for multi-staged and liquid-fueled rocket designs.

1915

Mar. 3: The U.S. government formed the National Advisory Committee for Aeronautics (NACA), regarded as the predecessor to NASA.

1918

Oct. 2: The U.S. successfully flight-tested the Kettering Bug, the first pilotless aircraft, in Dayton, Ohio.

1943

Apr. 19: RAF photo interpreter Constance Babington Smith identified the V-1 pulse-jet weapon in an aerial reconnaissance photo take of test facility at Peenemunde, Germany.

1945

Mar. 19: The German V-2 program was abandoned, leaving rocket technology for capture by Allied forces.

1946

Apr. 16: The U.S. Army first launched captured German V-2 rocket at White Sands, New Mexico during missile testing.

May 2: RAND report, "Preliminary Design of Experimental World-Circling Spaceship" affirmed feasibility of launching space satellites.

1947

Jul. 26: President Truman signed the National Security Act, establishing the U.S. Air Force as a separate service and forming the CIA, the National Security Council (NSC) and the DoD.

1950

Oct. 9: The U.S. Air Force established Project Gopher for development of a polyethylene high-altitude reconnaissance balloon.

1952

Jul. 5: The U.S. Air Force directed Strategic Air Command (SAC) to modify B-47B bomber to perform photoreconnaissance missions; the first mission took place in October.

Oct. 15: The first Presidentially authorized overflight of the U.S.S.R. took place with B-47B aircraft, acquiring photographs of northeastern Siberian air bases.

Nov. 2: The CIA established a photo interpretation unit within its Office of Research and Reports.

1954

Mar. 1: RAND issued "FEED BACK Report" recommending the USAF develop a surveillance satellite program.

▲ **Top: U-2 spy plane used for overflights of the U.S.S.R. Bottom: Genetrix approved by President Eisenhower to fly at high-altitudes as a camera-carrying balloon above the altitude of jet fighters, propelled by the east-to-west jet stream. Project Genetrix helped to close the sizable intelligence gap on the interior regions of the U.S.S.R.**

May 8: The USAF used a RB-47E to conduct photoreconnaissance in extreme northwestern Soviet Union.

Jul. 1: The USAF established the Western Development Division, considered the birthplace of U.S. missile and satellite development, in Inglewood, California.

Nov. 24: President Eisenhower approved the U-2 concept and appointed the CIA to manage its development.

Dec. 9: The CIA signed contract to develop U-2, termed the "biggest intelligence bargain in history."

1955

Apr. 18: Two Soviet MiGs shot down a US RB-47E reconnaissance aircraft near Chukotskiy Peninsula.

▲ **Before the U-2 was shot down in 1960, the U.S. already developed a replacement for the U-2 aircraft under the OXCART and SR-71 programs.**

May 26: NSC's first space policy declared a U.S. satellite, built as part of International Geophysical Year objectives, would be for "peaceful uses of space" that would test the international principle of "freedom of space."

Jul. 21: Soviets rejected President Eisenhower's Open Skies proposal at Geneva, providing impetus for U-2 operations and missions over U.S.S.R.

Aug. 4: U-2 prototype flew its first test flight, just eight months after its contract was signed with Lockheed.

1956

Jan. 10: Genetrix camera carrying balloons began a series of 516 releases over the next month, collecting intelligence over denied areas.

Jun. 26: RAND issued "Physical Recovery of Satellite Payloads" report recommending substituting film recovery for electronic scanning and readout in orbit.

Jul. 4: Hervey Stockman piloted the first U-2 overflight over denied Soviet airspace, flying over Leningrad; Soviet radar detected the flight.

Jul. 10: Soviet officials protested American U-2 violation of Soviet airspace resulting in President Eisenhower temporarily suspending the Soviet overflights.

Oct. 29: The USAF awarded contract to Lockheed for the WS-117L program, an outgrowth of RAND studies and the only reconnaissance satellite effort at that time in the U.S.

Nov. 27: Requirement clearly defining an effort for a reconnaissance satellite system emerged from the WS-117L; Pentagon approved the operational requirement four months later.

1957

Mar. 6: Merton Davies conceived a "hot idea" for attaching a spin-pan camera to a satellite after discussions with Fairchild Camera employee, Frederic Wilcox.

May 15: The U.S.S.R. launched R-7 ICBM, giving Soviet Union the lead in space race.

Oct. 4: U.S.S.R. launched Sputnik-1, the first artificial, earth-orbiting satellite and setting the "international precedence for freedom of space."

Dec. 6: The U.S. Navy's Vanguard, anticipated as the first satellite to launch in the Western world in response to Sputnik, exploded two feet above launch pad.

Dec. 17: The U.S. successfully launched first Atlas ICBM, eventually leading to its use for payloads in space.

1958

Jan. 31: The U.S. Army's Jupiter-C launch vehicle placed Explorer I, America's first satellite, into orbit.

Feb. 28: President Eisenhower endorsed film recovery satellite program for satellite photoreconnaissance.

Mar. 10: WS-117L's secret film recovery satellite Program IIA was renamed "Project Corona."

Aug. 19: National Intelligence Estimate (NIE) on Soviet strength contributed to a "missile gap" question that lingered until Sept. 1961 when publication of NIE-11-8/1-61, based on Corona imagery, confirmed that Soviet missile production lagged far behind originally forecast figures.

Oct. 1: National Aeronautics and Space Act established NASA as U.S. civilian space agency.

Dec. 3: Press release provided cover for the secret CIA's Corona program, disassociated it from the Air Force WS-117L program, and attributed development and future launches to the Discoverer series for scientific exploration until the program was declassified.

1959

Jan. 2: The U.S.S.R. launched Luna 1, first Soviet attempt to reach the moon. Instead it passed within 5,995 km of the moon's surface two days later and went into orbit around the Sun.

Jan. 21: First Corona launch failed.

Aug. 7: U.S. Explorer VI transmitted the first image of the Earth from space using a television scanner.

Aug. 24: President Eisenhower approved the Grab Elint satellite reconnaissance program.

1960

Apr. 1: U.S. launched TIROS, the first experimental meteorological satellite, with weather imaging capability that would later support Corona.

▲ **Top: The Soviet's Sputnik-1 was the first artificial, Earth-orbiting satellite in space. Bottom: Propelled by the quest for intelligence on Soviet activity, the Naval Research Laboratory's Grab was orbited 500 miles above Earth to collect signals emanating from ground-based radar antennas.**

Apr. 13: The U.S. Navy successfully launched and orbited Transit 1B, the first navigation satellite.

May 1: Soviets used SA-2 surface-to-air missile (SAM) to shoot down Francis Gary Powers' U-2 reconnaissance plane near Sverdlovsk, U.S.S.R.

May 24: Midas II, a U.S. early warning satellite, launched but transmission failed after two days.

Jun. 22: U.S. Naval Research Laboratory and USAF launched Elint satellite, Grab, the first U.S. reconnaissance satellite.

Aug. 10: U.S. launched Discoverer XIII, the first successful diagnostic flight in Corona series.

Aug. 11: The USN team retrieved Discoverer XIII's recovery capsule containing an American flag, the first recovery of a man-made object from orbit.

Aug. 19: A USAF C-119 caught Discoverer XIV's recovery capsule in mid-air; it contained first reconnaissance photographs from space.

Aug. 20: The U.S.S.R. made its first successful space recovery, Vostok prototype (Sputnik V), all animals and plants aboard survived the flight.

Aug. 25: The National Security Council assigned responsibility for Samos satellite reconnaissance program to SECAF.

Aug. 31: SECAF established Samos Project Office on West Coast and Office of Missiles and Satellite Systems (SAF/MSS) in Washington D.C. to direct Project Samos; both were predecessor organizations of the NRO.

Dec. 7: USAF launched Corona Mission 9013, the first successful mission with KH-2 camera.

1961

Feb. 1: The USAF successfully launched a three-stage, solid fuel Minuteman ICBM.

Apr. 12: Soviet Air Force Lieutenant Yuri Gagarin became first human in space.

May 5: LCDR Alan Shepard became first American in space during a brief sub-orbital flight.

Aug. 30: USAF launched Corona Mission 9023, the first mission with a KH-3 camera.

▲ **C-119 catching the Corona recovery vehicle. Corona was a technological marvel that scientists and engineers developed beyond expectations. The Corona saw several firsts: first recovery of an object in space, first midair recovery of an object sent into space, and first intelligence photograph of a target imaged from space.**

Sept. 6: DoD and CIA established the National Reconnaissance Office (NRO) to oversee the National Reconnaissance Program.

1962

Feb. 20: Lt. Col. John Glenn, Jr. became the first U.S. astronaut to orbit the Earth, circling three times in a span of five hours.

Apr. 26: U.S.S.R. launched Zenit-2 under designator Kosmos 4, the first Soviet photoreconnaissance test satellite to orbit; it failed to return satisfactory images.

Apr. 30: CIA's A-12, a high-altitude, supersonic "Blackbird" aircraft intended as a follow-on to the U-2, made its first official test flight.

Jul. 17: Robert White piloted the U.S. X-15 to lower reaches of space; first winged aircraft to reach stratosphere.

Jul. 23: DNRO Joseph Charyk organized the NRO into Program A (Air Force), Program B (CIA), Program C (Navy), and Program D (aircraft).

Jul. 28: The U.S.S.R. launched Zenit-2 (Kosmos 7) which orbited for 10 days and provided Soviets with the first clear photoreconnaissance images from space.

▲ **U-2 reconnaissance photo of a Soviet SA-2 surface-to-air missile (SAM) deployment site captured prior to the events of the Cuban Missile Crisis in 1962.**

Aug. 23: NRO launched first successful Defense Meteorological Satellite Program (DMSP) satellite.

Aug. 29: U-2 imagery revealed SA-2 and surface-to-air missile sites under construction in Cuba.

Oct. 14: U.S. U-2 reconnaissance aircraft acquired imagery of Soviet SS-4 medium-range ballistic missiles at San Cristobol, Cuba.

Oct. 22: After disclosing to leaders of Britain, France, Germany, and Canada reconnaissance photos of Soviet nuclear-capable missiles in Cuba, President Kennedy televised to the American people that "closest surveillance" of the island yielded "unmistakable evidence of offensive missile sites."

Oct. 28: Soviet officials ordered removal of nuclear-capable missiles from Cuba.

Dec. 13: NRO successfully launched second signals reconnaissance satellite, Poppy 1.

1963

Jun. 16: Soviet Valentina Tereshkova became first woman to orbit Earth; aboard Vostok 6, she orbited Earth 48 times in a three-day flight.

1964

Dec. 22: The SR-71, the USAF's "Blackbird," a slightly larger and heavier version of the CIA's A-12, made its first official test flight.

1965

Nov. 20: The CIA's A-12 made its final validation flight, setting speed and altitude records of Mach 3.29 and 90,000 feet.

1966

Jan. 7: Lockheed delivered first SR-71 aircraft to SAC.

Aug. 23: NASA's Lunar Orbiter 1 satellite took first pictures of Earth from the moon using Samos camera.

1967

Jun. 26: The U.S.S.R. launched Kosmos-189, the first Soviet Elint satellite, but it failed to orbit.

1969

Jul. 20: U.S. astronauts Neil Armstrong and Buzz Aldrin became the first to walk on the moon.

1970

Apr. 24: China joined U.S., U.S.S.R., France, and Japan to establish a satellite reconnaissance program with the DFH-1 launch.

Nov. 6: The USAF launched Defense Support Program (DSP) satellite, the first operational missile warning satellite.

1972

May 25: NRO launched Mission 1117, the final Corona photoreconnaissance satellite.

1973

Dec. 17: DoD approved Global Positioning System (GPS) development.

1974

Oct. 1: NRO and CIA abolished Program D, transferring responsibilities for U-2, A-12, and the SR-71 to the USAF.

1977

Jan. 16: FBI arrested Christopher Boyce, who (with Andrew Daulton Lee) sold secrets about a Sigint satellite reconnaissance system to the Soviet Union. Both were convicted in federal court in the spring of 1977.

1978

Feb. 22: The USAF launched first GPS Block 1 constellation satellite.

Oct. 1: President Carter publicly acknowledged the use of photoreconnaissance satellites for treaty monitoring.

1981

Apr. 12: The first Space Shuttle was launched from Cape Canaveral.

1982

Sept. 1: The USAF activated Space Command to consolidate operational space activities.

1983

Jun. 18: Astronaut Sally Ride became the first U.S. woman in space when she flew aboard the Space Shuttle Challenger.

1984

Aug. 11: Jane's Defense Weekly published classified photo of first Soviet aircraft carrier.

1986

Jan. 28: Space Shuttle Challenger exploded just after liftoff, killing all seven crew members.

Aug. 7: U.S. Court sentenced Bruce Ott to 25 years for his attempt to sell classified information on SR-71 "Blackbird."

Oct. 27: U.S. charged Allen John Davies with attempting to pass classified reconnaissance technology to Soviets. He was sentenced to five years in August 1987.

1989

Nov. 9: Berlin Wall collapsed.

1990

Jan. 25: U.S. Air Force retired the SR-71 reconnaissance aircraft from SAC service in ceremonies at Beale AFB, California.

1991

Dec. 25: The Soviet Union collapsed with the resignation of General Secretary Mikhail Gorbachev.

1992

Mar. 24: U.S. and 23 other nations signed the Open Skies treaty, allowing unarmed aerial-reconnaissance missions by signatory nations.

Sept. 18: The DoD officially acknowledged existence of the NRO.

▲ **Aerial view of the NRO Headquarters. The NRO is publicly acknowledged by the DoD in 1992 as needs to centralize all operations and management into one location made it necessary to come "out of the shadows." In 1994, construction began on the Westfields Complex, which now serves as the NRO headquarters.**

1995

Feb. 24: President Clinton declassified Corona imagery.

Jul. 17: The first GPS satellite constellation became fully operational.

1996

Dec. 18: The first NRO launch is declassified with public acknowledgment that the Titan IV carried an NRO satellite into space.

1997

Mar. 1: The NRO declassified certain offices, personnel, and sites involved in space launch and approved releasing, for some launches, the fact that they carry NRO satellites.

1998

Jun. 17: As part of its 75th anniversary celebration, the Naval Research Laboratory announced DCI George Tenet's declassification of limited information about the Grab satellite.

2000

Oct. 25: DCI George Tenet approved declassification of imagery acquired by KH-7 and KH-9 cameras.

2001

Sept. 11: Using commercial aircraft in a suicide attack, Al Qaeda terrorists destroyed two World Trade Center towers, damaged the Pentagon, and highjacked a fourth plane that passengers downed in Pennsylvania.

Oct. 7: Operation Enduring Freedom began in Afghanistan.

2002

Sept. 20: National Geospatial-Intelligence Agency (then called NIMA) formally transferred imagery acquired by KH-7 and KH-9 cameras to National Archives.

2003

Feb. 1: Space Shuttle Columbia (Mission STS-107) suffered catastrophic failure 15 minutes before touchdown at Kennedy Space Center; the seven crew members died.

Feb. 5: Secretary of State Colin Powell used satellite reconnaissance imagery at U.N. Security Council to contend that Iraq failed to comply with disarmament obligations.

▲ **The Pentagon after the attack on 9/11/2001.**

Mar. 19: Operation Iraqi Freedom began.

2004

May 11: DCI George Tenet approved Poppy declassification.

Dec. 17: President George W. Bush signed the Intelligence Reform and Terrorist Prevention Act creating the position of Director of National Intelligence.

2005

Apr. 21: Ambassador John D. Negroponte sworn in as the first Director of National Intelligence.

2006

Jul. 5: North Korea conducted seven missile tests, including the long-range Taepo-Dong 2 missile that failed shortly after launch.

2007

Jan. 11: China successfully carried out its first test of an antisatellite weapon, shooting down an aging Chinese weather satellite.

2008

Feb. 20: U.S. Navy successfully shot down an errant NRO satellite carrying toxic hydrazine fuel.

May 25: Phoenix Lander, a robotic spacecraft, descended onto Mars' northern polar region where it later confirmed that water, in the form of ice, exists on Mars.

Jun. 9: NRO declassified the fact of radar satellite reconnaissance.

Oct. 15: NRO declassified the fact of domestic Mission Ground Stations and NRO presence at RAF Menwith Hill, UK and the Joint Defence Facility Pine Gap near Alice Springs, Australia.

2009

Jan. 17: NRO launched a payload for the first time aboard a Delta IV heavy launch vehicle.

2010

Apr. 15: President Obama presented the administration's proposal to cancel NASA's moon-mission program, Constellation.

▲ NROL-30

Founders of National Reconnaissance

"These scientists, engineers, and innovators — through their technical expertise — shaped the emerging discipline of national reconnaissance and provided the confidence for creating the NRO in 1960-61."

Keith Hall, Former DNRO

William O. Baker, Ph.D.
Service to National Reconnaissance: 1950–1980

Shaped the course of signals intelligence, communications, and encryption/decryption technologies as scientific counselor to NSA, CIA, USN, and NRO. As a "Land Panel" member, helped pave the way for the first near-real-time reconnaissance satellite system.

Merton E. Davies
Service to National Reconnaissance: 1948–1975

Invented the Spin-Pan camera and collaborated in the film recovery satellite proposal for Corona. Davies later served on NRO and other advisory panels that established reconnaissance requirements.

Sidney D. Drell
Service to National Reconnaissance: 1960–2000

Achieved recognition in the area of reconnaissance for his contributions in various areas of physics, from ballistic missile launches to photographing the Earth from space.

Richard L. Garwin, Ph.D.
Service to National Reconnaissance: 1957–2000

Served as a key scientific advisor to NRO's Program B, and established standards and found solutions for electromechanical design of modern long-life spacecraft.

Amrom H. Katz
Service to National Reconnaissance: 1941–1976

Co-directed a project on peacetime overflight reconnaissance, and co-proposed film-recovery satellites. This proposal was eventually established as the Corona Project.

James R. Killian, Jr., Ph.D.
Service to National Reconnaissance: 1950–1973

Chaired the Technological Capabilities Panel for President Eisenhower that recommended building the U-2 aircraft and reconnaissance satellites. He was subsequently involved in shaping the agreements between the Department of Defense and CIA that structured the NRO.

Edwin H. Land
Service to National
Reconnaissance: 1952–1980

Invented instant photography and founded the Polaroid company. Later served on the Technological Capabilities Panel for assessing technical capabilities supporting intelligence collection, subsequently chairing the "Land Panel" for reconnaissance capabilities. He advocated for early reconnaissance programs like U-2 and Corona and played a vital role in advising President Nixon on capabilities of Electro-Optical Imagery (EOI).

Frank W. Lehan
Service to National
Reconnaissance: 1965–1975

Was instrumental in the decision to proceed with an important signals intelligence satellite system, and contributed to the reflector designs for that system.

William J. Perry, Ph.D.
Service to National
Reconnaissance: 1955–1997

Chaired the "Perry Panel" that advised NRO's Program B on all overhead signals intelligence collection systems. He later served as Under Secretary of Defense for Research and Engineering and Secretary of Defense.

▲ **Founders of National Reconnaissance plaque.**

Edward M. Purcell, Ph.D.
Service to National
Reconnaissance: 1950–1965

Worked on all early overhead reconnaissance projects (including U-2, A-12/SR-71) that operated at extreme altitudes. His most significant contribution used new materials and methods to ensure these vehicles, if not invisible to radar, were hard to observe with radar.

Pioneers of National Reconnaissance

A Pioneer of national reconnaissance is an individual who made a lasting and significant contribution that changed the direction or scope of the discipline of national reconnaissance. Each year, the National Reconnaissance Office honors a select group of individuals as Pioneers of National Reconnaissance.

▲ **Pioneers of National Reconnaissance, Class of 2000**

Class of 2000

James G. Baker, Ph.D.
Pioneered the use of computer algorithms to model lens design and developed U-2 camera lenses.

C. Lee Battle, Jr., Colonel, USAF
Originated and applied the principles of "Battle's Laws" to successfully guide day-to-day management of Corona.

John T. Bennett
Developed innovative system designs for signals intelligence spacecraft that advanced the nation's national reconnaissance capabilities.

John W. Browning, Colonel, USAF
Pioneered a new and powerful signals intelligence capability and dramatically enhanced signals intelligence collection.

Jon H. Bryson, Colonel, USAF
Directed the development, acquisition and operation of an on-orbit satellite system that helped reduce signals intelligence data processing and dissemination times.

A. Roy Burks
Successfully conquered technical challenges dealing with Corona and effectively managed the vital relationship among government, military and contractor employees.

Frank S. Buzard, Colonel, USAF
Led Corona's system integration and operations, ensuring the program stayed on track. Managed Corona's follow-on program.

Cornelius W. "Connie" Chambers
Provided the cornerstone design for the vehicle protective measures during the early development of space reconnaissance technologies.

John O. Copley, Colonel, USAF
Pioneered improvements in payload design and ground data processing and exploitation of signals intelligence satellites.

Robert H. Crotser
Wrote cost and schedule management handbook, still used today, to deliver Program B's electro-optical imaging satellite on time and under budget.

John J. Crowley
Established an enduring partnership between NRO's CIA and USAF elements, and advanced development on four successful satellite programs.

James C. de Broekert
Major contributor to the successful development of the first low-earth-orbiting electronic intelligence systems.

Gary S. Geyer, Colonel, USAF
Pioneered near real time delivery of products to military and civil users with his work in signals intelligence collection, data processing, and dissemination.

Thomas O. Haig, Colonel, USAF
Directed the program that developed the National Reconnaissance Office meteorological satellite system significantly increasing the quantity of cloud-free pictures.

Frederick H. Kaufman
Produced two important Sigint satellites, to include the first communications cross-link system in space, as director of a team for Program B.

Robert J. Kohler
Developed unique imaging techniques and introduced photographic edge measurement and sharpening tools for evaluating and enhancing overhead imagery.

Ellis E. Lapin
Contributed to the on-orbit reliability of the NRO's satellite imagery reconnaissance systems by managing the design and development of the spacecraft and hardware.

Lloyd K. Lauderdale, Ph.D.
Program Manager for the CIA Program B team that developed an advanced signals intelligence satellite from concept through first launch.

Richard S. Leghorn, Colonel, USAF
Major contributor to Corona camera development and co-founder and first president of Itek Corp. that built the first U.S. space camera. He is often credited with originating the "Open Skies" concept.

Walter J. Levison
Designed the cameras for the Genetrix balloon and Corona satellite photoreconnaissance programs.

Howard O. Lorenzen
Early advocate of signals intelligence satellites, he directed the development of Grab, the nation's first such program at the Naval Research Laboratory.

Francis J. Madden
Directed the design and production of the Corona cameras and helped solve technical problems that threatened the camera in space.

James T. Mannen, Colonel, USAF
Introduced procedures that improved target tasking and significantly increased ground resolution and on-orbit system reliability.

Paul W. Mayhew, Ph.D.
Helped lead the development of the payload electronic, mechanical, and radio frequency elements, from concept to verified designs.

Reid D. Mayo
Conceived and designed the nation's first operational space-bound reconnaissance system — the Grab signals intelligence satellite.

James E. Morgan
Developed the target tasking and data dissemination architectures for key programmatic systems.

Mark N. Morton
Directed the General Electric team that developed, tested, and built the Corona reentry vehicle and its successful recovery sequence.

Alden V. Munson, Jr.
Introduced and developed an automatic, operational electronic intelligence collection and data processing system that directly supported U.S. military in the field.

Charles L. Murphy, Colonel, USAF
First Field Technical Director at the Corona Advanced Projects Integration Facility, a crucial link between Corona operations and the Intelligence Community.

Frederic C.E. "Fritz" Oder, Colonel, USAF
Directed the first U.S. satellite reconnaissance enterprise, the WS-117L Program, a significant contribution to early military and national reconnaissance satellites.

John Parangosky
Forged government and contractor team successes and the overall technical success of the Corona program with his strong team building skills.

Julius P. "Val" Peline, Ph.D.
Served as a Lockheed system test director and program manager for a key imaging intelligence satellite program.

Robert M. Powell
Devised a novel payload-pointing mechanism that greatly extended the lifetime of satellites in orbit.

Edward H. Reese
Led the architecture and development of the ground data system for Electro-Optical Imaging processing and added subsequent improvements used today.

Osmond J. "Ozzie" Ritland, Major General, USAF
Managed service infrastructure for early overflights of the U.S.S.R. as the USAF manager for the U-2 program, and later supported Corona as Vice Commander of the Air Force's Air Research and Development Command's Western Development Division.

Lee W. Roberts, Colonel, USAF
Directed improvements in an important Program A satellite reconnaissance effort that produced high-resolution imagery of earth's surface.

Charles R. "Charlie" Roth
CIA manager in Program B for government/industry team that produced the first electro-optical reconnaissance satellite system.

Robert W. Roy, Colonel, USAF
Oversaw launches at Vandenberg Air Force Base, managed the construction of launch pads, and established launch requirements and procedures that became standards.

Charles P. Spoelhof
Directed efforts that helped revolutionize film recovery with the application of thin-based Mylar film in NRO camera systems. He also served as optical engineer for U-2, A-12, and Samos camera design.

Forrest H. Stieg
CIA engineer and spacecraft operational specialist in Program B, devised a process for selecting an optimum orbit that balanced signals collection with vehicle longevity.

Marvin S. Stone, Ph.D.
Revolutionized overhead Sigint collection with innovative electronic and radio frequency technologies while serving as a payload systems engineer and project manager for Program B.

Don F. Tang
Established a "collection scale" for determining which signals could be collected at a reasonable cost, setting the stage for the development of all future Sigint systems.

Albert D. "Bud" Wheelon, Ph.D.
Served as the first CIA Deputy Director of Science and Technology and was responsible for U-2 overflights, the development of the Oxcart A-12, and three major satellite reconnaissance systems.

Peter G. Wilhelm
Invented new devices and techniques that contributed to increased capabilities and improved performance on early signals intelligence satellites.

Roy H. Worthington, Colonel, USAF
Directed the integration and launch of some 200 satellites from the Western Test Range. He supervised new factory-to-launch procedures for moving satellites from R&D to operations.

Robert W. Yundt, Colonel, USAF
Directed Program A's Signals Intelligence Project Office and developed a low altitude multi-purpose Sigint satellite that became vital to the NRO's early efforts in ELINT collection.

▲ Pioneers of National Reconnaissance, Class of 2001

▲ Pioneers of National Reconnaissance, Class of 2002

Class of 2001

Donald L. Cromer, Lt. General, USAF (Ret)
Directed the design, development, and acquisition of a new imaging satellite system that became a critical part of U.S. national reconnaissance.

A.J. "Tony" Iorillo
Conceived a new concept in spacecraft control and operations, which contributed to successful near-real-time optical imaging, with data relayed directly from space to a ground processing system.

Vincent S. Rose
Designed the first Elint payload used in Sigint reconnaissance satellites, allowing receivers to collect radar emissions across broad frequency ranges.

John Walton
Served as a key architect and leader in the successful operation of earth and space-based program elements.

Class of 2002

Vance D. Coffman, Ph.D.
Led the development of a new satellite attitude control capability that provided major improvements in satellite-collected images.

Lee M. Hammarstrom
Developed satellite, ground station, and processing improvements that enhanced the accuracy, timeliness, and volume of Elint products. He later led the NRO's Technology Office and served as NRO Chief Scientist.

Robert L. Paulson, Colonel, USAF (Ret)
Served as a dynamic manager in the imaging intelligence arena, directing his team through the design, development, and testing of its satellite systems.

▲ Pioneers of National Reconnaissance, Class of 2003

▲ Pioneers of National Reconnaissance, Class of 2004

Class of 2003

Carl L. Ferdensi, Jr.

Pioneered improvements in telemetry processing for foreign instrumentation signals intelligence (Fisint) data, aiding decisions on Soviet military capabilities.

David Raspet, Colonel, USAF

Pioneered advanced methods of integrating spacecraft into launch vehicles, ensuring sustained operation of reconnaissance satellites.

James W. Stoner, Ph.D.

Pioneered techniques for near-real-time processing of Elint signals and developed capabilities to process large volumes of data.

Charles C. Tevis

Instrumental in the founding of the Defense Special Missile and Astronautics Center (DEFSMAC) as a centralized facility for all-source information and analysis, where he served as inaugural director of DEFSMAC under appointment by SECDEF.

Class of 2004

M. Sam Araki

Pioneered the development of the world's first stabilized space platform, Agena, which the NRO used for the Corona and other satellites.

Harvey Cohen, Lt Colonel, USAF (Ret)

Pioneered innovative National Reconnaissance Office security practices and procedures that helped keep NRO's collection system covert during the Cold War.

Robert G. Kaemmerer

Pioneered the development of the most sophisticated family of intelligence satellite systems during the Cold War.

James W. McAnally

Championed development of a new imagery satellite reconnaissance system used during the Cold War to the present, supporting a wide range of operations.

▲ Pioneers of National Reconnaissance, Class of 2005

▲ Pioneers of National Reconnaissance, Class of 2006

Class of 2005

Robert Eisenhauer

Pioneered techniques that changed wide-area Sigint reconnaissance technology and dramatically improved the accuracy and dissemination timeliness of satellite intelligence products.

Roger C. Marsh

Applied analytical and management skills to construct a secure facility and widely-dispersed operation into the present NRO headquarters.

Wayne L. Proffitt

Pioneered the design of the mechanism that enabled satellites to point their communications dishes at relay satellites and maintain continuous contact while still imaging.

Edward A. Miller, Ph.D.

Developed the first man-made object to be recovered from earth orbit–the recovery vehicle for Corona.

Class of 2006

Ingard M. Clausen

Pioneering efforts laid the groundwork for the Corona system's ability to endure the harsh environment of space and withstand the heat of reentry into the Earth's atmosphere.

Fred V. Hellrich

Developed innovations that provided revolutionary improvement in the productivity, accuracy, and timeliness of electronic intelligence product.

David L. Klinger, Ph.D.

Successful in developing and deploying a new technology that substantially enhanced the ability of the NRO to collect overhead intelligence.

Jane A. Wood

Pioneered the development of a budget and accounting system that accurately tracked expenditures for complex satellite programs.

▲ Pioneers of National Reconnaissance, Class of 2007

Class of 2007

Paul G. Kaminski, Ph.D.
Pioneered the development of a new type of reconnaissance satellite system and introduced innovative tools for analysts to exploit information from this complex system.

Sun Yet Wong
Pioneered new technologies that improved the effectiveness of satellite systems. Developed STARDYNE, which enabled the NRO to analyze complex spacecraft and special payloads.

▲ Pioneers of National Reconnaissance, Class of 2008

Class of 2008

Raymond E. Anderson, Colonel, USAF (Ret)
Pioneered the use of solid-state recorders in reconnaissance satellites to extend their operational life spans.

Howard G. Brotherton
Pioneered advances in momentum management and developed techniques that advanced the state of automation for critical satellite missions.

Hilliard W. Paige, Sr.
Pioneered the concept of using ICBM reentry technology for the recovery of reconnaissance film capsules from space, which proved instrumental in the successful development of the Corona recovery system.

▲ Pioneers of National Reconnaissance, Class of 2009

Class of 2009

James P. Campbell, Ph.D.
Provided technical excellence and leadership in conception through deployment of a new, innovative imaging reconnaissance capability - to include a ground and spacecraft - that demonstrated unprecedented extended operational life.

Lacy G. Cook
Demonstrated technical ingenuity in developing and applying a unique technology that enabled a new capability to fit into the limited space of an existing NRO satellite and resulted in providing unprecedented information to national policy makers.

Michael F. Maguire
Pioneered and pushed the state of the art for one of the last film-based NRO reconnaissance systems, resulting in a national reconnaissance space constellation with greater reliability and operational longevity.

▲ Pioneers of National Reconnaissance, Class of 2010

Class of 2010

Robert H. Dumais
Pioneered intelligence utility of a new capability for an imaging satellite system that led to improved quality imagery products from space.

Jack A. Gibbs, Brigadier General, USAF (Ret)
Proved the effective use of high-altitude airborne reconnaissance for denied area intelligence collection during the Cold War through application of innovative engineering on U-2 operations and assessment for lower radar "detectability."

Richard J. Randazzo, Colonel, USAF (Ret)
Improved satisfaction of mission requirements and increased coverage of high priority targets through his introduction and application of new operational techniques for NRO imaging systems.

Table of Selected NRO Launches

This is a partial list of unclassified space launches from 1959 until 2009. The list has been verified by the Office of Space Launch at the NRO.

LAUNCH DATE	PROGRAM	LAUNCH VEHICLE	SITE	MISSION	LAUNCH VEHICLE	UPPER STAGE	MISSION
02/28/59	Corona	Thor-Agena A	Vandenberg Air Force Base	N/A	Success	Success	Success
04/13/59	Corona	Thor-Agena A	Vandenberg Air Force Base	N/A	Success	Success	Success
06/03/59	Corona	Thor-Agena A	Vandenberg Air Force Base	N/A	Success	Failure	—
06/25/59	Corona	Thor-Agena A	Vandenberg Air Force Base	Imint	Success	Failure	—
08/13/59	Corona	Thor-Agena A	Vandenberg Air Force Base	Imint	Success	Success	Success
08/19/59	Corona	Thor-Agena A	Vandenberg Air Force Base	Imint	Success	Success	Success
11/07/59	Corona	Thor-Agena A	Vandenberg Air Force Base	Imint	Success	Success	Success
11/20/59	Corona	Thor-Agena A	Vandenberg Air Force Base	Imint	Success	Failure	—
02/04/60	Corona	Thor-Agena A	Vandenberg Air Force Base	Imint	Success	Failure	—
02/19/60	Corona	Thor-Agena A	Vandenberg Air Force Base	Imint	Failure	—	—
04/15/60	Corona	Thor-Agena A	Vandenberg Air Force Base	Imint	Success	Success	Success
06/22/60	Grab/ Dyno 1	Thor-Able Star	Cape Canaveral Air Station	Sigint	Success	Success	Failure
06/29/60	Corona	Thor-Agena A	Vandenberg Air Force Base	N/A	Success	Failure	—
08/10/60	Corona	Thor-Agena A	Vandenberg Air Force Base	Imint	Success	Success	Success
08/18/60	Corona	Thor-Agena A	Vandenberg Air Force Base	Imint	Success	Success	Success
09/13/60	Corona	Thor-Agena A	Vandenberg Air Force Base	Imint	Success	Success	Success
10/11/60	Samos 1	Atlas-Agena A	Vandenberg Air Force Base	Imint	Success	Failure	—
10/26/60	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Failure	—
11/12/60	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Failure	Failure

Table of Selected NRO Launches (cont.)

LAUNCH DATE	PROGRAM	LAUNCH VEHICLE	SITE	MISSION	LAUNCH VEHICLE	UPPER STAGE	MISSION
11/30/60	Grab/Dyno	Thor-Able Star	Cape Canaveral Air Station	Sigint	Failure	—	—
12/07/60	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
12/20/60	Corona	Thor-Agena B	Vandenberg Air Force Base	N/A	Success	Success	Success
01/31/61	Samos 2	Atlas-Agena A	Vandenberg Air Force Base	Imint	Success	Failure	—
02/17/61	Argon	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
02/18/61	Corona	Thor-Agena B	Vandenberg Air Force Base	N/A	Success	Success	Success
03/30/61	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Failure	—
04/08/61	Argon	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
06/08/61	Argon	Thor-Agena B	Vandenberg Air Force Base	Imint	—	Failure	—
06/16/61	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
06/29/61	Grab/ Dyno 2	Thor-Able Star	Cape Canaveral Air Station	Sigint	Success	Success	Success
07/07/61	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
07/21/61	Argon	Thor-Agena B	Vandenberg Air Force Base	Imint	Failure	—	—
08/03/61	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Failure	
08/30/61	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
09/09/61	Samos 3	Atlas-Agena A	Vandenberg Air Force Base	Imint	Failure	—	—
09/12/61	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
09/17/61	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Failure	Failure
10/13/61	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
10/23/61	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Failure	—
11/05/61	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
11/15/61	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success

Table of Selected NRO Launches (cont.)

LAUNCH DATE	PROGRAM	LAUNCH VEHICLE	SITE	MISSION	LAUNCH VEHICLE	UPPER STAGE	MISSION
11/22/61	Samos 4	Atlas-Agena B	Vandenberg Air Force Base	Imint	Failure	—	—
12/12/61	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
12/22/61	Samos 5	Atlas-Agena B	Vandenberg Air Force Base	Imint	Failure	—	—
01/13/62	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Failure	
01/24/62	Poppy 1	Thor-Able Star	Cape Canaveral Air Station	Sigint	Failure	—	—
02/27/62	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
03/07/62	Samos 6	Atlas-Agena B	Vandenberg Air Force Base	Imint	Failure	—	—
04/18/62	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
04/26/62	Poppy 2	Scout	Vandenberg Air Force Base	Sigint	Failure	—	—
04/26/62	Samos 7	Atlas-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
04/28/62	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
05/15/62	Argon	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
05/30/62	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
06/02/62	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
06/17/62	Samos 8	Atlas-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
06/23/62	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
06/28/62	Corona	Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
07/18/62	Samos 9	Atlas-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
07/21/62	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
07/28/62	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
08/02/62	Corona	Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
08/05/62	Samos 10	Atlas-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success

Table of Selected NRO Launches (cont.)

LAUNCH DATE	PROGRAM	LAUNCH VEHICLE	SITE	MISSION	LAUNCH VEHICLE	UPPER STAGE	MISSION
08/29/62	Corona	Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
09/01/62	Argon	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
09/17/62	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
09/29/62	Corona	Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
10/09/62	Argon	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
10/26/62	Corona	Thor-Agena B	Vandenberg Air Force Base	N/A	Success	Success	Success
11/05/62	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
11/11/62	Samos 11	Atlas-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
11/24/62	Corona	Thor-Agena B	Vandenberg Air Force Base	Imint	Success	Success	Success
12/04/62	Corona	Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
12/13/62	Poppy 3	Thor-Agena D	Vandenberg Air Force Base	Sigint	Success	Success	Success
12/14/62	Corona	Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
01/07/63	Corona	Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
02/28/63	Corona	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Failure	—	—
03/18/63	Lanyard	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Failure	—
04/01/63	Corona	Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
04/26/63	Argon	Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Failure	—
05/18/63	Lanyard	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
06/12/63	Corona	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
06/15/63	Poppy 4	Thor-Agena D	Vandenberg Air Force Base	Sigint	Success	Success	Success
06/27/63	Corona	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success

Table of Selected NRO Launches (cont.)

LAUNCH DATE	PROGRAM	LAUNCH VEHICLE	SITE	MISSION	LAUNCH VEHICLE	UPPER STAGE	MISSION
07/18/63	Corona	Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
07/31/63	Lanyard	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
08/25/63	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
08/29/63	Argon	Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
09/23/63	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
10/29/63	Argon	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
11/09/63	Corona	Thor-Agena D	Vandenberg Air Force Base	Imint	Failure	—	—
11/27/63	Corona	Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
12/21/63	Corona	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
01/11/64	Poppy 5	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Sigint	Success	Success	Success
02/15/64	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
03/24/64	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Failure	—
04/27/64	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
06/04/64	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
06/13/64	Argon	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
06/19/64	Corona J1	ThrustAugmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
07/10/64	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
08/05/64	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success

Table of Selected NRO Launches (cont.)

LAUNCH DATE	PROGRAM	LAUNCH VEHICLE	SITE	MISSION	LAUNCH VEHICLE	UPPER STAGE	MISSION
08/21/64	Argon	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
09/14/64	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
10/05/64	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
10/17/64	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
11/02/64	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
11/18/64	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
12/19/64	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
01/15/65	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
02/25/65	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
03/08/65	Poppy 6	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Sigint	Success	Success	Success
03/25/65	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
04/29/65	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
05/18/65	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
06/09/65	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
07/19/65	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
08/17/65	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
09/02/65	Corona	Thor-Agena D	Vandenberg Air Force Base	N/A	Failure	—	—

Table of Selected NRO Launches (cont.)

LAUNCH DATE	PROGRAM	LAUNCH VEHICLE	SITE	MISSION	LAUNCH VEHICLE	UPPER STAGE	MISSION
09/22/65	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
10/05/65	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
10/28/65	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
12/09/65	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
12/24/65	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
02/02/66	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
03/09/66	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
04/07/66	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
05/03/66	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Failure	—	—
05/24/66	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
06/21/66	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
08/09/66	Corona J1	Thorad-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
09/20/66	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
11/08/66	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
01/14/67	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
02/22/67	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
03/30/67	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success

Table of Selected NRO Launches (cont.)

LAUNCH DATE	PROGRAM	LAUNCH VEHICLE	SITE	MISSION	LAUNCH VEHICLE	UPPER STAGE	MISSION
05/09/67	Corona J1	Long Tank Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
05/31/67	Poppy 7	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Sigint	Success	Success	Success
06/16/67	Corona J1	Long Tank Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
08/07/67	Corona J1	Long Tank Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
09/15/67	Corona J3	Long Tank Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
11/02/67	Corona J1	Long Tank Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
12/09/67	Corona J3	Long Tank Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
01/24/68	Corona J1	Long Tank Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
03/14/68	Corona J1	Long Tank Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
05/01/68	Corona J3	Long Tank Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
06/20/68	Corona J1	Long Tank Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
08/07/68	Corona J3	Long Tank Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
09/18/68	Corona J1	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
11/03/68	Corona J3	Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
12/12/68	Corona J1	Long Tank Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
02/05/69	Corona J3	Long Tank Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success

Table of Selected NRO Launches (cont.)

LAUNCH DATE	PROGRAM	LAUNCH VEHICLE	SITE	MISSION	LAUNCH VEHICLE	UPPER STAGE	MISSION
03/19/69	Corona J1	Long Tank Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
05/02/69	Corona J1	Thorad-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
07/24/69	Corona J3	Thorad-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
09/22/69	Corona J1	Thorad-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
09/30/69	Poppy 8	Thorad-Agena D	Vandenberg Air Force Base	Sigint	Success	Success	Success
12/04/69	Corona J3	Thorad-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
03/04/70	Corona J3	Thorad-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
05/20/70	Corona J3	Thorad-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
07/23/70	Corona J3	Thorad-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
11/18/70	Corona J3	Thorad-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
02/17/71	Corona J3	Thorad-Agena D	Vandenberg Air Force Base	Imint	Failure	—	—
03/24/71	Corona J3	Thorad-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
09/10/71	Corona J3	Long Tank Thrust Augmented Thor-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
12/14/71	Poppy 9	Thorad-Agena D	Vandenberg Air Force Base	Sigint	Success	Success	Success
04/19/72	Corona J3	Thorad-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success
05/25/72	Corona J3	Thorad-Agena D	Vandenberg Air Force Base	Imint	Success	Success	Success

Except for the declassified programs (Corona, Grab, and Poppy) all launches between 1972 and 1996 were classified. After 1996, the fact that the rockets launched carried NRO payloads was unclassified, but the satellites remain classified.

LAUNCH DATE	PROGRAM	LV TYPE	SITE	INT
12/20/96	(Classified)	Titan IV Nus	Vandenberg Air Force Base	(Classified)
10/23/97	(Classified)	Titan IV Nus	Vandenberg Air Force Base	(Classified)
11/07/97	(Classified)	Titan IV Centaur	Cape Canaveral Air Station	(Classified)
01/29/98	(Classified)	Atlas IIA	Cape Canaveral Air Station	(Classified)
05/08/98	(Classified)	Titan IV Centaur	Cape Canaveral Air Station	(Classified)
08/12/98	(Classified)	Titan IV Centaur	Cape Canaveral Air Station	(Classified)
10/03/98	(Classified)	Taurus	Vandenberg Air Force Base	(Classified)
08/17/00	(Classified)	Titan IV Nus	Vandenberg Air Force Base	(Classified)
12/06/00	(Classified)	Atlas IIAS	Cape Canaveral Air Station	(Classified)
05/18/01	(Classified)	Delta II	Cape Canaveral Air Station	(Classified)
09/08/01	(Classified)	Atlas IIAS	Vandenberg Air Force Base	(Classified)
10/05/01	(Classified)	Titan IV Nus	Vandenberg Air Force Base	(Classified)
09/09/03	(Classified)	Titan IV Centaur	Cape Canaveral Air Station	(Classified)
12/02/03	(Classified)	Atlas IIAS	Vandenberg Air Force Base	(Classified)
08/31/04	(Classified)	Atlas IIAS	Cape Canaveral Air Station	(Classified)
02/03/05	(Classified)	Atlas III	Cape Canaveral Air Station	(Classified)
04/29/05	(Classified)	Titan IV Nus	Cape Canaveral Air Station	(Classified)
10/19/05	(Classified)	Titan IV Nus	Vandenberg Air Force Base	(Classified)
06/27/06	(Classified)	Delta IV (4,2)	Vandenberg Air Force Base	(Classified)
12/14/06	(Classified)	Delta II	Vandenberg Air Force Base	(Classified)
6/15/07	(Classified)	Atlas V	Cape Canaveral Air Station	(Classified)
12/10/07	(Classified)	Atlas V	Cape Canaveral Air Station	(Classified)
3/13/08	(Classified)	Atlas V	Vandenberg Air Force Base	(Classified)
1/17/09	(Classified)	Delta IV-H	Cape Canaveral Air Station	(Classified)
9/20/10	(Classified)	Atlas V 501	Vandenberg Air Force Base	(Classified)
11/21/10	(Classified)	Delta IV-H	Cape Canaveral Air Station	(Classified)

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Acronyms

AFBMD	Air Force Ballistic Missile Division
CIA	Central Intelligence Agency
DCI	Director of Central Intelligence
DEFSMAC	Defense Special Mission and Aerospace Center
DMSP	Defense Meteorological Satellite Program
DNRO	Director, National Reconnaissance Office
DoD	Department of Defense
DSP	Defense Support Program
ELINT	Electronic Intelligence
EOI	Electro Optical Imaging
FISINT	Foreign Instrumentation Signals Intelligence
GPS	Global Positioning System
GRAB	Galactic Radiation and Background Satellite
HPSCI	House Permanent Select Committee on Intelligence
ICBM	Intercontinental Ballistic Missile
IMINT	Imagery Intelligence
KGB	Komitet Gosudarstvennoi Bezopasnosti (Soviet State Security Committee)
MIDAS	Missile Detection and Alarm System
NACA	National Advisory Committee for Aeronautics
NASA	National Aeronautics and Space Administration
NGA	National Geospatial-Intelligence Agency
NIE	National Intelligence Estimate

Acronyms (cont.)

NIMA	National Imagery and Mapping Agency
NPIC	National Photographic Interpretation Center
NRP	National Reconnaissance Program
NRL	Naval Research Laboratory
NSC	National Security Council
OGO	Orbiting Geophysical Observatory
OMSS	Office of Missile and Satellite Systems
RAF	Royal Air Force
SAC	Strategic Air Command
SALT	Strategic Arms Limitation Talks
SAM	Surface-to-Air Missile
SecAF	Secretary of the Air Force
SecDef	Secretary of Defense
SIGINT	Signals Intelligence
SLV	Space Launch Vehicle
UK	United Kingdom
UN	United Nations
USAF	United States Air Force
USN	United States Navy
USSR	Union of Soviet Socialist Republics
WADC	Wright Air Development Center
WDD	Western Development Division (United States Air Force)

Center for the Study of National Reconnaissance

The Center for the Study of National Reconnaissance (CSNR) is the research, historical, and analytical center in Business Plans and Operations (BPO). CSNR products and activities help define and explain the policy and doctrine of national reconnaissance. CSNR functions are intended to support the NRO's strategic goals to execute space reconnaissance, transform sources and methods, and partner in delivering vital intelligence.

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The vision in the Center for the Study of National Reconnaissance is to have a mission-oriented influence on NRO decisionmaking by sharing the CSNR's research-based insight into the discipline of national reconnaissance.

Mission

The primary mission is to advance and shape the Intelligence Community's understanding of the discipline, practice, and history of national reconnaissance. Our objective is to ensure that NRO leadership has the analytical framework and historical context to make effective policy and programmatic decisions. We focus on social science and historical research, with a goal to enable the NRO to meet its mission objectives. The CSNR reports to the Deputy Director, Business Plans and Operations.

Functions

CSNR is organized into three business areas:

1. Research, Studies, and Analysis;
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3. Historical Documentation and Research.

The purpose of these functional business areas is to help inform and educate those involved with national reconnaissance and to assist NRO program managers in building and operating an integrated architecture that will be responsive to current and future needs of the U.S. national security community.

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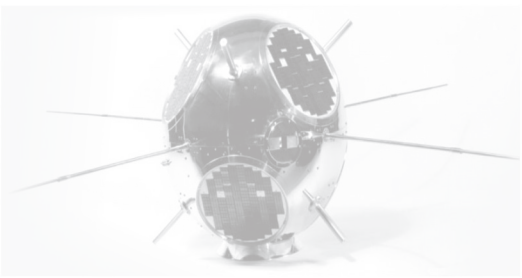


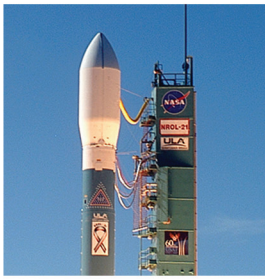

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